

Carbon Trading and Islamic Capital Market Growth: Doubling Time and Forecasting

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Abstract:

The Islamic Environmental market is a new avenue in Islamic finance. So far no practical effort has been made to integrate emission market and Islamic finance. Carbon trading is a billion dollar market but working under conventional finance system. The present research is an attempt to calculate the doubling time of growth of selected Islamic financial segments inclusive of carbon trading growth in selected regions. It discusses the reformative course for Islamic capital market to accommodate carbon trading. For this purpose an average growth rate of carbon market is selected and infused in Islamic capital market to forecast Islamic capital market growth. Further growth rates of Islamic banking, takāful and Ṣukūk market is taken from different regions of the world and doubling time of growth of Islamic capital market is calculated with the inclusion of average growth rate of carbon trade. The methodology includes Rule 70 to calculate doubling time. The results show that Asia with carbon trading in Islamic finance has more scope with high effects on reducing time to gain the required worth and Islamic finance growth requires one year less time to gain the double worth.

Introduction:

The total value of carbon market grew by 11 % from year to year to US\$176 billion. Trading volumes for secondary Kyoto offsets are also increasing by 43% YOY to 1.8 billion tons of CO₂, worth of \$23 billion. To date, 90 countries, including 48 developing nations have registered plans with the United Nations Framework Convention on Climate Change (UNFCCC) to reduce emissions by 2020. Global population is heading towards 9 billion by 2050. New investments are being added in clean energy. The new investments in clean energy reached \$260 billion in 2011. There is an expansion in the Emission Trading scope because new gases other than CO₂ and assets are integrated into the Scheme including aviation sector the second largest emitting sector after

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power sector¹. One of the segments of carbon trading is Clean Development Mechanism. Clean Development Mechanism (CDM) is a powerful tool to use finance for emission-reduction for sustainable development. The CDM is designed for developing countries whereas industrialized countries paying for these reductions, because emission cuts are thought to be less expensive in developing countries than developed countries. United Nations in Climate Change report² mentioned that more than 6,000 projects worth of billions of dollars have been registered in 83 developing countries. The World Bank³ estimated that during 2012, the largest potential for production of Certified Emission Reduction (CERs) would be from China (52%) and India (16%). CERs produced in Latin America and the Caribbean would have 15% of the potential total, with Brazil as the largest producer in the region (7%).

Muslim population is 20% of the global population. The share of Islamic finance in global financial assets is estimated at around 1% only. Australia, Europe and America's collective share is 5% in the global Islamic finance market whereas Asia share is 5%. Indonesia and Bangladesh each represents around 1% of the global Islamic finance industry. Takaful market represents only 1% of the global insurance market at present. The large centers of Islamic Finance are: Iran, with a share of 35.7% in total Islamic finance assets, Saudi Arabia 13.9%, United Arab Emirates (UAE) 8.7%, Kuwait 7.3%, Bahrain 5.3%, and Qatar, 4.8%⁴.

The main objective of the study is to open a new growth paradigm for Islamic finance to include carbon trading for its future growth. It is then to calculate the doubling time required for Islamic financial industry to grow on the basis of its present growth rate; with and without carbon trading. It is to find out the difference of growth pattern before and after the inclusion of carbon trading.

The study hypothesized that the inclusion of Carbon Trading in Islamic finance reduces the doubling time less than half of which otherwise is required for the Islamic industry to grow at that rate during the coming decades.

Literature Review:

According to Kyoto Protocol in 1997, major economies of the world; Developed countries (Annex 1) and Developing Countries (Annex 2) agreed to reduce the emission level of Green House Gases (GHGs) from 1990 level⁵. Carbon trading does not mean sale and purchase of carbon but trading is the right to emit (GHGs) in the form of units having different rules and regulations. These forms are Assigned Amount Units (AAUs), Certified Emissions Reduction Units (CERs), Emissions Reduction Units (ERUs), Removal Units (RMUs), and European Union Allowances (EUAs). The European Union Emission Trading System (EU ETS) created in 2005 is the world largest trading scheme⁶.

The regulation of Islamic Environmental market is an important part of the capital market growth with tasks like data profile of companies that are

emitting carbon, monitoring of capital adequacy, risk management, environmental project designing for Islamic financial industry and projection in environmental emission market to save it from liquidity mismanagement and over and under-allocation of carbon tradable units etc. Carbon Takaful, Emission Ijāra, Carbon Şukūk, Sharia'h Joint Implementation (SJI), Islamic Clean Development Mechanism (ICDM) are the new proposed products by the present study that can solve the problem⁷.

It is a fact that the number of qualified practitioners, as well as Sharia'h scholars available for Sharia'h boards, is currently very low and very concentrated, only the top 20 Sharia'h scholars hold 619 board positions which represent more than half of the 1,141 positions available⁸.

In 2010, about 20% of the world's population was Muslim, a market of 1.9 billion of 112 countries. This population is expected to increase to 2.2 billion by 2030. Muslims currently have a 7.7% share of global GDP which is expected to grow to 8.7% by end-2016. New economies are joining the Islamic finance market, for example central Asia with Afghanistan, Azerbaijan, Kazakhstan, Turkmenistan, Kyrgyzstan and Tajikistan, and others like Ethiopia, Kenya, Gabon, Malawi, Morocco, Nigeria, Tanzania and Somalia⁹.

Methodology:

In order to achieve the objectives of the study and to test the hypothesis some segments of investment have been taken from Global Islamic Financial industry. These are Islamic Banks, Islamic Fund, Takūful and Şukūk. The time period for selecting growth and assets of these segments is for the years 2009, 2010 and 2011. The rule of 70¹⁰ is used to determine the time period to double the worth of Islamic finance. To find the doubling time we divide the natural log of 2 by the growth rate.

$T = \log(2) / \log(1+r)$, Where, T is the number of periods required.

Thus $T_2 = 70 / \% \text{ growth per unit of time}$. In order to calculate the New Growth, following formula is used.

Islamic Financial Industry's growth + Carbon Trading average growth = New Growth (NG)

In order to get NG, all selected segments of Islamic Finance are taken. The doubling time is calculated on the basis of original growth and then doubling time is calculated on the basis of NG.

Results and Discussion:

Islamic banking, takāful, Şukūk, and Islamic fund are the main segments of Islamic finance. These are being practiced in different regions of the world. The following table shows the Compound Annual Growth Rate (CAGR) of these segments in these regions. Sub-Saharan Africa witnessed high growth so having very short time of one year to double the worth but Asia on the other hand have to take 6 years to double the worth. In other words with 11% growth, the worth

would be doubled in 2017. Asia has lot of potential for carbon trading through CDM projects. If carbon trading is taken into account the growth of Islamic financial industry's assets for Asia would increase from 11% to 14% thus reducing the time required to double the worth of assets. Global Islamic Financial Assets' growth rate in 2011 was 23% having worth \$ 1329.4 b. which would take 3 years to become \$ 2658.8 b. With the inclusion of Carbon Market, it will take only 2 years to achieve the same worth.

| Region | Banking | Shukūk Outstanding | Islamic Funds | Takāful | CAGR % | Total | Doubling Time | Doubling Worth \$ b. | NG= CAGR+3 | Doubling T with NG |
|-----------------------|---------|--------------------|---------------|---------|--------|--------|---------------|----------------------|------------|--------------------|
| North America/ Europe | 42.9 | 1.5 | 14.6 | 0.0 | 21.6 % | 59.1 | 3 | 118.2 | 24.6% | 2 |
| MENA | 462.6 | 0.1 | 0.5 | 6 | 25.1 % | 469.2 | 2 | 938.4 | 28.1% | 2 |
| Sub-Saharan Africa | 14.5 | 0.2 | 1.5 | 0.4 | 35.2 % | 16.6 | 1 | 33.2 | 38.2% | 1 |
| GCC | 411.1 | 55.6 | 27.1 | 6.4 | 27.7 % | 500.3 | 2 | 1000.6 | 30.7% | 2 |
| Asia | 144.8 | 120.8 | 16.2 | 2.4 | 11% | 284.2 | 6 | 568.4 | 14% | 5 |
| World | 1075.9 | 178.2 | 59.9 | 15.2 | 23% | 1329.4 | 3 | 2658.8 | 26% | 2 |

Source: Data is calculated by the researcher and is taken from "Islamic Finance Industry & Global Shukūk Market (2012)", and "Islamic Finance in OIC member Countries (2012)"

B: Islamic Fund:

During 2010, global growth of Islamic fund was 8% having worth of \$58b. With this growth rate, the worth of the fund would be doubled (\$116 b) in 9 years i.e. in 2019. But if Carbon Trading average growth rate is taken into consideration the New Growth rate would be 12% and it would then take 6 years to achieve \$116 b. in Islamic fund. Islamic Fund would be then doubled in 2016 instead of 2019.

Table: 2 Islamic Fund's Growth

| Islamic Mode | Year | Country/Region | Growth rate | Worth/ \$ b. | Doubling Time | Doubling T with NG= 9+3 |
|----------------------------------|------|----------------|-------------|--------------|---------------|-------------------------|
| Islamic fund | 2010 | Global | 8% | 58 | 9 | |
| Islamic fund | 2019 | Global | 8% | 116 | | 6 |
| Islamic Fund with Carbon Trading | 2016 | Global | 12% | 116 | 6 | |

Source: Data is calculated by the researchers and is taken from "Islamic Finance in OIC member Countries (2012)"

C: Islamic Banking and Şukūk:

Islamic banking and Şukūk market has more potential than any other segment of Islamic financial industry for Clean Development Mechanism and for other avenues of investment in Emission market. The following table shows that with the inclusion of carbon trading, not only the growth rate of Islamic banking and Şukūk would be increased from 15% to 18% and from 25% to 28% respectively but these will take less time to double its worth. There would be a reduction of one year time to double the worth of Islamic Banking if they start financing the carbon market.

Table: 3 Growth of Islamic Banking and Global Sukuk:

| Year | Mode | Region/ Country | Growth | Doubling Time | NG= CAGR+3 | Doubling time with NG |
|-----------|-----------------|-----------------|------------|---------------|------------|-----------------------|
| 2009 | Islamic Banking | Global | 10-15% p.a | 4 | 18% | 3 |
| 2007-2011 | Islamic Banking | Global | 21% CAGR | 3 | 24% | 2 |
| 2012 | Şukūk | Global | 25% p.a | 2 | 28% | 2 |

Source: Data is calculated by the researcher and is taken from “Islamic Finance Industry & Global Şukūk Market (2012)”, “Islamic Finance in OIC member Countries (2012)” and World Islamic Banking Competitiveness Report 2011-12,

D: Takaful:

Table: 4 Takaful Growth

| Year | Mode | Region | Growth | Worth \$ | Doubling Time | Doubling worth(b. \$) | NG = CAGR+3 | Doubling T with NG |
|-----------|-----------------|--------|--------|----------|---------------|-----------------------|-------------|--------------------|
| 2010 | Takaful | Global | 22.90% | 13.7 b | 3 | | 25.90% | 2 |
| 2009 | Takaful | Global | 17.70% | 11.1 b | | | | |
| 2007-2011 | Takaful | Global | 19.10% | 15.2 b | 3 | 30.4 b | 22.10% | 3 |
| 2015 | Takaful Premium | Global | 19% | 25 b | 3 | 50 b | 22% | 3 |

Source: Data is calculated by the researcher and is taken from “World Takaful Report, 2012”, “Islamic Finance in OIC member Countries (2012)”

It has been observed as shown in the above table that if the past growth rate in a particular segment is low then it takes longer time to double the worth as compared to high growth in the past. So the segments and the regions having low growth should be more accommodating for carbon trading than regions and segments with high growth rates. Global takāful growth with carbon financing would increase from 19% to 22% and would be doubled in 2014.

E: Islamic Financial Industry:

Islamic Financial Industry grew at 15% rate during 2010-2011 having worth \$1.12 trillion. With this growth, the industry would take 4 years to double its worth to \$ 2.24 trillion. But if NG would count, the growth rate would increase to 18% and it will take just 3 years to reach to \$ 2.24 trillion. The results show that if Islamic Financial Industry have had invested in Carbon Market since 2010, it could have easily achieved the worth \$ 2.24 trillion in 2013.

Table: 5 Islamic Financial Industry's Growth:

| Islamic Mode | Year | Growth Rate | Worth \$ | Doubling Time | Doubling T with NG=15+3 |
|----------------------------|---------|-------------|---------------|---------------|-------------------------|
| Islamic Financial Industry | 2010-11 | 15% | 1.12trillion | | |
| Islamic Financial Industry | 2014 | 15% | 2.24trillion | 4 | |
| Islamic Financial Industry | 2013 | 18% | 2.24 trillion | | 3 |

Source: Data is calculated by the researchers and is taken from "Islamic Finance Industry & Global Şukūk Market (2012)", "Islamic Finance in OIC member Countries (2012)" and World Islamic Banking Competitiveness Report 2011-12 ¹¹.

Conclusion and Recommendation:

It is a high time that Islamic Financial market should invest in carbon market not only to conduct carbon trading on sustainable measures but also to increase the share of Islamic finance which is presently only 1% to the global finance. Asia, Latin American Countries, MENA region and Gulf region has a lot of potential to finance Carbon projects. It would not only increase the growth of Islamic finance but also reduce the time required for doubling the worth of the industry. It has been observed that by taking share of just 3% growth rate from carbon trading market, there is a reduction of at least one year time which otherwise is required in achieving the double growth rate worth of Islamic industry. In order to take a start in the new trading, the role of institutions like Islamic Development Bank is very crucial. Iran, Malaysia, Indonesia, and China have a lot of scope for investment in the emission market through Islamic finance. Integration of Carbon trading and Islamic finance will open new doors for employment and services.

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